

DRIVING EXCELLENCE IN THE FUEL CYCLE
Remarks by Bill Borchardt
Fuel Cycle Information Exchange 2011
June 7, 2011

Good morning. I'm pleased to be here with you today for the Fuel Cycle Information Exchange. This is an important annual event that helps keep the NRC and our fuel cycle stakeholders in contact with one another, sharing information and experience that will promote effectiveness, efficiency, safety, and security across our various activities and responsibilities.

Safety of the nuclear fuel cycle is a major focus for the agency. It has been an area of substantial activity and progress since the agency was established and we expect it to remain so in the coming years. Looking ahead, there are a number of factors that will affect our future progress and the direction we take. These include Commission direction and other internal factors, domestic developments from outside the agency, and international events/activities, such as the recent accident at Fukushima in Japan. Collaboration and information sharing – the theme of this conference – will be critical to future progress and continuing success in this area.

Today I'd like to first acknowledge some of our recent accomplishments and ongoing activities, and then highlight a few of the drivers that will set the stage for the NRC and you in the coming years.

We have had a lot of activity – and progress – in the area of new enrichment facilities over the last few years. In 2010, we completed the

operational readiness review and authorized Louisiana Energy Services to start operations. Operation of the first two cascades began in June of last year. We are progressing in our review of a license application from AREVA Enrichment Services for construction of the proposed Eagle Rock Enrichment Facility (EREF), and an application from General Electric-Hitachi Global Laser Enrichment, LLC for a full-scale facility. Also in the uranium enrichment arena, we are working closely with the U.S. Department of Energy and the licensee, USEC, to begin the process of de-certifying the Portsmouth Gaseous Diffusion enrichment plant so that the decommissioning process can begin on the remaining facilities at that plant.

Unrelated to uranium enrichment, we issued the Safety Evaluation Report on the application for an operating license for Shaw AREVA MOX Services for its fuel fabrication facility that is under construction.

In May, the NRC published a proposed rule extending the Integrated Safety Analyses (ISA) currently conducted by Part 70 licensees for special nuclear materials to licensees under Part 40 for uranium conversion/de-conversion facilities. The current regulations in Part 40 do not contain integrated safety analyses requirements for evaluating the consequences of accidents at these types of facilities. This proposal would require applicants and licensees who possess or plan to possess significant amounts of UF₆ to conduct an ISA and submit an ISA summary to the NRC just like Part 70 licensees.

In a related matter, the NRC is currently reviewing an application from International Isotopes Fluorine Products, Inc. to construct and operate a Fluorine Extraction Process and Depleted Uranium Deconversion plant near Hobbs, New Mexico. If approved, this plant will be the first major commercial deconversion facility licensed by the NRC to convert depleted UF₆ to a uranium oxide for the purpose of recovering the fluoride products. The NRC's licensing safety review and development of the environmental impact statement are currently scheduled to be completed in 2012.

We continue to work on enhancing the fuel cycle oversight process and the fuel cycle program oversight infrastructure. The staff is working to improve the process to make it more risk-informed, performance-based, predictable, and transparent. As directed by the Commission, staff completed the comparison of Integrated Safety Analysis and Probabilistic Risk Assessment and is developing the cornerstones of a Significance Determination Process or SDP. In addition, staff is developing an approach that would provide an incentive for licensees to develop and maintain a strong Corrective Action Program. As a result of this work, a plan with the path forward to enhance the oversight process will be provided to the Commission later this year.

Another area of significant recent activity is reprocessing, and more specifically, reprocessing rulemaking. Earlier this year, two industry groups submitted letter to the NRC expressing their interest in developing and constructing commercial licensed facilities in the US, and encouraged the NRC to move forward with developing a stable regulatory framework. Staff is currently working on a regulatory framework for licensing a reprocessing

facility. We have identified and are addressing regulatory gaps and are developing a technical basis document. We also are actively engaging stakeholders in our activities. This summer, staff will develop a Commission Paper seeking direction for moving forward with the rulemaking. Currently, funding for this work is limited and we expect this to be a multi-year process, as it goes forward.

As you can see, there is a significant amount of activity underway at the NRC, and Commission direction will be needed to shape work in several areas. Let me now turn to some of the external factors that I expect will affect our shared future.

Continuing to meet the needs of our regulated community and implementing the program enhancements that we wish to make, will have to occur in a tightening fiscal environment. The NRC has had great flexibility in the past in meeting changing regulatory demands by reprogramming funds to accommodate workload changes. The new reality is that budgets have flattened or shrunk in recent years, although the workload has not. In accomplishing our work going forward, we will need to prioritize our work across the agency to ensure we are focusing on mission-critical activities first. We are taking a number of steps to ensure we are operating as efficiently as possible, but that alone will not be enough. Some activities may get delayed or shelved. But be assured, we do not intend to do anything that will compromise our ability to carry out our mission effectively. And, I intend to do everything I can to ensure that key fuel cycle licensing and oversight initiatives are maintained.

Another driver potentially affecting the pace and direction of future work will be the recommendations of the President's Blue Ribbon Commission on America's Nuclear Future (or the BRC). This 15-member Commission is conducting a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommending a new plan. I know you will be hearing more about this during a session tomorrow, but let me just talk briefly about the draft recommendations that were recently issued by this Commission.

The Reactor and Fuel Cycle Technology Subcommittee is looking at currently available reactor and fuel cycle technologies, and any not-yet commercial technologies that are now under development. The Subcommittee is examining whether any such technologies have the potential to change either the fundamental nature of the nuclear waste management challenge we confront over the next several decades or the approach the United States should take to implement a plan for the storage and ultimate disposition of spent nuclear fuel and high-level radioactive waste.

The draft recommendations are generally consistent with the strategies and programs the NRC is currently conducting, but let me highlight a few. Among the recommendations of this Subcommittee is a recognition that advances in fuel cycle technologies may hold promise for achieving substantial benefits in terms of safety and other challenges. At the same time, however, the Subcommittee's view is that no currently available or reasonably foreseeable fuel cycle technology, including reprocessing and recycling technologies, has the potential to fundamentally alter the waste

management challenge we face over the next several decades. The draft recommendations also suggest that the NRC should strengthen RD&D to accelerate the development of regulatory frameworks and support anticipatory research for novel components of advanced nuclear energy systems. Finally, the Subcommittee recommends that the US continue to take a leadership role in international efforts to address global nonproliferation concerns.

The BRC is expected to issue a final report by the end of January 2012. After the final report is submitted, it will be up to the Administration and Congress to decide how to utilize the recommendations given in the report.

Whatever the BRC finally recommends and the Administration and Congress decide to pursue, the NRC has well positioned itself to meet future needs. In particular, as part of the NRC's Waste Confidence Decision and Rule, which were published in December of 2010, the Commission found that, with reasonable assurance, high level waste and spent nuclear fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of such waste and spent fuel. The Commission also found that, if necessary, spent fuel generated in any reactor can be stored safely without significant environmental impacts for at least 60 years beyond the licensed life for operation of a reactor in a combination of storage in its spent fuel storage basin and either onsite or offsite independent spent fuel storage installations.

In addition to these findings, the Commission directed the staff to provide the Commission with a plan for a longer-term Waste Confidence rulemaking that includes the staff's recommendation on storage longer than 60 years and integrates those plans with current efforts to examine extended storage and transportation of spent nuclear fuel. The staff plan was sent to the Commission in February of this year and consists of three key activities:

- (1) develop the technical information needed to understand the significant safety issues and environmental impacts of extended storage and transportation;
- (2) develop an environmental impact statement (EIS) and updated Waste Confidence decision (generic safety findings) for 300 years of storage and handling of spent nuclear fuel; and
- (3) revise the Waste Confidence rule to reflect the updated Waste Confidence decision and the conclusions of the EIS, as appropriate. And, of course, the staff's plan will consider the efforts of the BRC to ensure that the NRC can respond to potential modifications of national policy.

Although the spent fuel storage technologies and facilities, which are the focus of the Commission's waste confidence decision and the staff's research efforts, are not generally referred to as fuel cycle facilities, they are certainly a part of the back end of our nation's nuclear fuel cycle, along with the potential reprocessing facilities I mentioned earlier.

Commission direction on the fuel cycle oversight process and recycling, the tightening fiscal environment, the BRC, and the staff extended storage research efforts are just some of the internal and external domestic factors that will affect the nation's "nuclear future" and also have great potential to affect the nuclear fuel cycle. On the international front, I would like to briefly mention two additional factors that will affect our future direction in the fuel cycle arena.

The first one is the March 11 earthquake and tsunami in Japan that led to a significant nuclear emergency at the Fukushima Daiichi reactor site. On that day, the NRC's Emergency Operations Center went into around-the-clock monitoring mode, with our first concern being a potential tsunami on U.S. plants and radioactive materials on the west coast, and in Hawaii, Alaska, and the U.S. territories in the Pacific. We stayed in 24-hour monitoring mode until mid-May. On March 11, we began interactions with our Japanese regulatory counterparts and dispatched 2 experts to help at the U.S. Embassy in Japan. Ultimately we had a team of 11 in Japan to assist the Japanese government with technical support as part of the USAID response, and support the US ambassador. We are now in the process of reducing that staffing in Japan to about half that level, with the expectation of reducing that number even further over time.

NRC Chairman Gregory Jaczko traveled to Tokyo in late March to convey directly to his Japanese counterparts a message of support and cooperation, and to discuss the situation. There has been regular interaction with the White House, Congress, our state regulatory

counterparts, and a number of other federal agencies, and international regulatory bodies around the world.

Based on our assessment of the conditions as we understood them at the time, we recommended to the US ambassador a 50-mile evacuation zone around the site to protect the health and safety of US citizens in Japan. That has since been relaxed somewhat, to permit travel through the evacuation zone by train or car.

As you probably know, the Tokyo Electric Power Company and the Japanese government are still in the active accident mitigation phase of their activities, and there are a number of challenges that remain, including radioactive contamination, considerable debris, structural concerns, and radioactive waste disposal. However, the Japanese are moving ahead deliberately with their stabilization and remediation efforts and making progress in addressing these issues.

Because of our desire to avoid severe accidents at all licensed NRC facilities, on March 31st, the NRC issued Information Notice 2011-08 to all fuel cycle facility licensees, applicants, and holders of a construction authorization or certificate, to inform them of the events in Japan. Our stated expectation for doing this was for recipients to review the information for applicability to their facilities and consider actions, as appropriate, to ensure that features and preparations necessary to withstand or respond to severe external events from natural phenomena (such as earthquakes, floods, and tornadoes, and hurricanes) are reasonable.

As you may know, the NRC has set up a task force to conduct a near-term review of events in Japan and their applicability to US nuclear facilities. We are also developing an approach for a longer-term review as we obtain more complete information from Japan. One of the areas this longer-term review will examine is lessons of Fukushima as they apply to NRC-licensed facilities other than power reactors. I believe it is reasonable to assume that ultimately the ramifications of this event will affect more than just nuclear power reactors.

The second international driver I would like to mention is international cooperation and agreements. The US has a number of obligations under an increasing number of bilateral agreements, as well as commitments under various other international agreements, such as the US-IAEA Safeguards Agreements, the Voluntary Reporting Scheme, and the US Additional Protocol. These treaties and agreements capture an increasing amount of information critical to the control of materials and equipment. In addition, the IAEA is continuously developing advanced safeguards approaches for complicated fuel cycle facilities. To prepare for potential application of these advanced methodologies in the U.S., including at new fuel cycle facilities, the NRC is working with international and domestic partners to determine what impact these changes might have on U.S. facilities.

Separately, even the G8 group of 8 large countries' meeting in France last month addressed the "vital importance of nuclear safety" as a top priority on its agenda. The communiqué following the event spoke about the

“continuing need to re-evaluate safety” and urged countries to “carry out assessments at every stage of a nuclear installation’s lifetime.”

As the size of the domestic and global nuclear industries expands, we should expect that increased effort will be required by the NRC and our licensees to ensure continuing appropriate outreach with international partners and to fully implement the treaties and agreements to which we are a party.

Let me close by noting that substantial important work remains to be done. However, as I’ve discussed, several factors, some of which are outside of our control, will play a role in directing and prioritizing this work. I believe we can achieve the greatest success going forward if we continue to collaborate and share information, and this conference is an important step in that direction.

Thank you.